

University of Groningen

The amount of instruction provided by teachers versus the amount of instruction actually received by their students in special education

van der Worp-van der Kamp, L.; Bijstra, J.O.; Pijl, S.J.; Post, W.J.; Minnaert, A.E.M.G.

Published in:
European Journal of Special Needs Education

DOI:
[10.1080/08856257.2017.1373495](https://doi.org/10.1080/08856257.2017.1373495)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2018

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

van der Worp-van der Kamp, L., Bijstra, J. O., Pijl, S. J., Post, W. J., & Minnaert, A. E. M. G. (2018). The amount of instruction provided by teachers versus the amount of instruction actually received by their students in special education. *European Journal of Special Needs Education*, 33(4), 541-554.
<https://doi.org/10.1080/08856257.2017.1373495>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.



The amount of instruction provided by teachers versus the amount of instruction actually received by their students in special education

L. Van der Worp-van der Kamp, J. O. Bijstra, S. J. Pijl, W. J. Post & A. E. M. G. Minnaert

To cite this article: L. Van der Worp-van der Kamp, J. O. Bijstra, S. J. Pijl, W. J. Post & A. E. M. G. Minnaert (2018) The amount of instruction provided by teachers versus the amount of instruction actually received by their students in special education, *European Journal of Special Needs Education*, 33:4, 541-554, DOI: [10.1080/08856257.2017.1373495](https://doi.org/10.1080/08856257.2017.1373495)

To link to this article: <https://doi.org/10.1080/08856257.2017.1373495>



© 2017 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 10 Sep 2017.



Submit your article to this journal [↗](#)



Article views: 375



View Crossmark data [↗](#)

The amount of instruction provided by teachers versus the amount of instruction actually received by their students in special education

L. Van der Worp-van der Kamp^a, J. O. Bijstra^b, S. J. Pijl^a, W. J. Post^a and A. E. M. G. Minnaert^a

^aFaculty of Behavioural and Social Sciences, University of Groningen, Groningen, The Netherlands; ^bRegional Expertise Centre for Northern Netherlands Cluster 4 – Behaviour, Groningen, The Netherlands

ABSTRACT

The on-going academic delay of students with emotional and behavioural disorders (EBD) in special education (SE) is concerning. While students with EBD are capable of acquiring fair academic skills, these outcomes are still not being realised on a larger scale. A plausible explanation for these meagre results might lie in a shortage of instruction that students actually receive in class. Since these students benefit from an individual approach, a lack of the latter could be a source of their academic deficit. This study aims to assess the amount of instruction teachers provide to students with EBD in SE, as well as the amount of instructions students actually receive, individually or as part of group/subgroup. In 49 SE classes in the Northern Netherlands, attended by 487 students, the instruction was observed for 30 min per teacher. Descriptive statistics as well as graphs were used to determine the amount of instruction during the lessons observed. The outcomes demonstrate that, overall, students receive a reasonable amount of academic instruction. However, this appears to be distributed unevenly across students and about half of them do not receive any individual instruction. The generally scarce provision of individual instruction may be insufficient for meaningful learning gains.

ARTICLE HISTORY

Received 12 May 2017
Accepted 23 August 2017

KEYWORDS

Teacher; individual; academic; instruction; EBD subject classification

Introduction

Students with emotional and behavioural disorders (EBD) generally stand out for their problematic behavioural characteristics (Lane, Wehby, and Barton-Arwood 2005), tempting teachers and researchers to focus on their challenging behaviour. In addition, students with EBD often experience significant academic delay (Reid et al. 2004). These academic deficits increase over time, leading to significantly lower graduation rates (40%) and higher school dropout rates (51%) than students in any other disability category (Lane et al. 2008; Ledoux et al. 2012). Frequently, this academic delay is considered to be the result of an overemphasis

CONTACT L. Van der Worp-van der Kamp  lidy.van.der.worp@rug.nl

© 2017 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

on behavioural interventions at the cost of academic instruction (Wehby, Lane, and Falk 2003; Lane 2007; Hayling et al. 2008). However, Van der Worp-van der Kamp et al. (2017) demonstrated that teachers' academic instruction in special education (SE) is not seriously limited by behavioural instruction.

In an observational study, Van der Worp-van der Kamp et al. (2017) found that teachers provided their students with more academic than behavioural-oriented instruction (74% vs. 26% of the total instruction provided). Academically oriented instruction was defined as 'everything a teacher says regarding the content of the academic task' (e.g. 'look at assignment three' or 'what is the next step in your assignment'), while every remark about students' behaviour was noted as behavioural instruction (e.g. 'silence please' or 'keep working'). Given the fact that the greatest number of problem behaviours in classrooms are related to the content of the academic task (too difficult, not interesting, too long), this distinction between academic and behavioural instruction is important (Umbreit et al. 2007). If a student does not do the work because the task is too demanding, behavioural instruction is quite pointless, as it will not address the cause of the problem. Academic instruction concerning the task (e.g. addressing the question: 'Which part do you not understand?'), however, would provide both the student and teacher with information about the stagnated learning process.

Nevertheless, in a follow-up study, Van der Worp-van der Kamp et al. (2016) could not establish a relationship between the amount of academic instruction provided by teachers and the academic progress of their students. Teachers offering more academic instruction to their students did not produce better performing students than teachers offering less academic instruction. Moreover, a relationship between the amount of academic instruction and problem behaviour could also not be found.

A plausible explanation for these unexpected results is a likely discrepancy between the amount of academic instruction provided by teachers and the amount of academic instruction actually received by their students. Namely, given the special needs of these students and the fact that intense reciprocal interaction is necessary to keep them learning (Haydon et al. 2012), it is conceivable that teachers place much emphasis on approaching these students individually (Levy and Vaughn 2002; Vaughn et al. 2002; Steenbeek, Jansen, and van Geert 2012; Cameron 2014) or in small groups (Baker, Clark, Maier, and Viger 2008; Maggin et al. 2009; Hart et al. 2011). Generally, based on didactic principles, teachers start their lesson by addressing the whole group, reviewing prerequisite learning, followed by clear statements of the instructional goals, presentation and explanation of new material and guided practice. During these phases, all students receive instruction. In the subsequent stage of independent practise, teachers continue by instructing subgroups or individuals. In the case of special education, however, it is to be expected that many teachers would move rapidly to this phase, tending to approach their students individual.

As Cameron, Cook, and Tankersley stated (2012, 1335): 'when teachers engage students in frequent one-to-one interactions with the explicit purpose of teaching new knowledge or skills, the result tends to be that children learn'. However, time spent on one student cannot be spent on others. Gerber (2005, 517) refers to this as the 'scarcity dilemma': 'classroom teaching may be construed as competing (student) demand for resources (teaching effort) when those resources are limited relative to the demand (for individual student achievement)'. Consequently, when teachers provide instruction to students using a one-to-one approach or in small subgroups, dividing their time across students, there is little instruction time per student. Since performance outcomes of students with EBD are related to

instructional time received (Matheson and Shriver 2005; Vannest and Hagan-Burke 2010; Kurz, Talapatra, and Roach 2012), a lack of the latter may explain why the expected correlation between the amount of academic instruction provided by teachers on the one hand, and the behavioural and academic progress of their students on the other, could not be shown (Van der Worp-van der Kamp et al. 2016).

Primarily providing academic instruction to individual students has two possible effects: either teachers divide individual attention equally across the students, providing all with a relatively equal portion of academic instruction, or they focus their attention on only a few students, providing only a small number with academic instruction while others miss out. Both approaches might become a problem if this leaves numerous students spending considerable time waiting for individual academic instruction (IAI), especially since the latter is known to be a source of behavioural problems for students with EBD (Moore, Anderson, and Kumar 2005; Umbreit et al. 2007; Hayling et al. 2008).

To date, little is known about the way teachers in special education divide their academic instruction time across their students. Existing research regarding instructional time provided to students with EBD is generally inconsistent, revealing divergence in the percentage of instruction time provided (Metzker 2003; Hayling et al. 2008) and seldom explicitly addressing teachers in special education (SE). Moreover, they rarely address the diversity of academic versus behavioural instruction, in which SE teachers typically engage.

In summary, although recent evidence suggests that teachers in special education provide more instruction than assumed, little is known about the amount of academic instruction students actually receive. Since a lack of academic instruction received could be a plausible explanation for the bleak academic outcomes of students with EBD, this study aims to assess: (1) the extent to which teachers in special education provide academic instruction individually or to the group/subgroup during their lessons, (2) the distribution of academic instruction across the students involved.

Method

Design

An observational study was designed to ascertain: (1) the amount of academic instruction teachers provide during a lesson to the group, a subgroup and individual students and (2) the amount of academic instruction individual students receive during the same lesson. A quantitative approach was employed using a momentary time sampling observation technique to make it possible to collect observational data from several people (teachers and students) at the same time. Short-interval momentary time sampling was chosen because it accurately estimates percentage time for frequency and duration (Saudargas and Zanolli 1990). An observational instrument with both dimensions of behavioural and academic instruction (the AI_{Obs}) was developed and validated in an earlier study (Van der Worp-van der Kamp et al. 2017). Observations were scheduled during academic activities (maths, spelling) in special education classes. All teachers were informed about the aim and nature of the observations and volunteered to participate in the study. As observations are part of the daily routine and often take place in these SE classes, parents were broadly informed and consented to observations.

Data on the amount of instruction provided (by teachers) and received (by students) was collected during 30 min classroom observations. Experience shows that the end of a lesson often occurs at an imprecise time, therefore we opted for a fixed period of 30 min, making the lessons more comparable. For practical reasons, five students per group were observed. This number was based on experiences during training: observing one teacher and five pupils appeared to be most feasible within the chosen interval of 15 s. The sample of students observed was selected based on their seating position in the classroom: at the front left, the front right, the rear left, the rear right and in the centre. No relationship between seating position and nature of instruction by the teacher was expected. Teachers were not informed about which students were being observed. During the observations, the following data were collected: the size of the group, the level of the group and whether or not assistance was present in the group. Since the focus here is on instruction provided by teachers, teaching assistants were not included in the observations. Moreover, teaching assistants often take students out of the classroom, making it impossible to observe them in the setting of this study.

Four observers, graduate students of the Faculty of Behavioural and Social Sciences specialised in educational problems, were trained in direct observation by the author. During the training phase, operational definitions and observation procedures were discussed, sharpened and compared until all observers agreed. Especially Organizational instructions such as 'get your book', 'open your book' or 'pick up your pencil' were especially debated. Some observers scored these instructions as behaviourally focused, while others scored them as academically oriented. Since these remarks did not include specific academic instruction, all observers agreed to score them as behaviourally focused.

Additionally, the observers practised intensively, using video recordings of instructional lessons in RENNA4 classes. These recordings had been made earlier in the context of the development of the observation instrument. The recordings were observed for 30 min. To determine the degree of similarity between the different observers, interobserver agreement was calculated using Cohen's kappa.

Participants and setting

The study took place in all eight locations of a cluster of special primary schools for students with severe behavioural problems in the northern Netherlands (RENNA4). This widespread cluster of special schools was selected on the basis of proximity and the authors' connection with RENNA4. In this way, it was possible to contact many teachers, all working according to the principles of one instruction model. The latter made the lessons more comparable. Furthermore, RENNA4 is representative of schools for SE in the Netherlands. Observations were planned for all 53 groups. However, due to circumstances, such as planned assessments and illness, three groups were excluded from the analysis. Due to a planned gym class, one group could only be observed for 25 min. As there might be a relationship between the amount of academic instruction and the time period measured (in the beginning the focus will be on teaching all students and in the end on teaching students more individually), this group is also excluded from the analysis.

Consequently, the present study includes data from 49 groups, 487 students, of which 245 students were observed in the study. The mean group size was 9.9 (SD = 2.4). All grades (3–8) were included, with 49% of the groups consisting of a combination of grades. In 64%

of the groups, assistance was available. All of the students met the following school-specific criteria: (1) students showed severe behavioural or psychiatric problems in terms of DSM-IV; (2) this behaviour manifested in education as well as in the home and/or leisure activities; (3) youth care and/or a child psychiatric service were involved with these students; (4) student participation in education was extremely limited in terms of serious shortcomings in academic learning and/or behaviour in relation to the teacher or other students; (5) additionally, evident educational care by the school for at least six months had generated insufficient progress (WEC-raad 2008).

Variables

Academic instruction, both provided and received, was measured with an observation instrument, the AI_{Obs} , designed for and validated in an earlier study. Bland-Altman plots were used to determine and improve the construct validity of the observation scale (Van der Worp-van der Kamp et al. 2017). The instrument makes a distinction between academic and behaviourally oriented instruction. Everything a teacher says regarding the content of the academic task, as well as any activity meant to demonstrate or explain the academic topic, was noted as academic instruction, while every remark about student behaviour was noted as behavioural instruction. Remarks concerning matters unrelated to the lesson, such as small talk, handing out medication, talking to people outside the classroom and periods of silence were noted as 'other'. Observations were noted using pencil and paper at 15 s intervals, providing 120 measurements for each 30 min observation period. At the beginning of every 15 s interval, the observer marked the teacher's instruction as academic (AI) or behavioural (BI), noting at the same time the number of students the instruction was addressed to, ranging from one to the whole group.

The observer also noted whether the teacher did not provide any instruction (NI). Afterwards, based on the number of students addressed at each moment, instruction was coded IAI and individual behavioural instruction (IBI) when the teacher instructed students individual. Instruction was coded group academic instruction (GAI) and group behavioural instruction (GBI) when the teacher addressed the whole class. Instruction was coded as subgroup academic instruction (SGAI) and subgroup behavioural instruction (SGBI) when the teacher addressed a subgroup of students. Subgroup instruction was noted when it was not addressed to the whole group or to individual students (Hayling et al. 2008).

To measure the distribution of individual instruction across the students during the same intervals, the observer also noted the instruction received (AI, BI or NI) for the sample of five students per group. Afterwards, based on the number of students addressed at each moment, the instruction was coded IAI and IBI when it was addressed to an individual, GAI and GBI when it was addressed to the whole class and SGAI and SBAI when it was addressed to a subgroup.

Intervals in which teachers did not provide any instruction and thus students did not receive any instruction were noted as NI (no instruction). The moments in which students did not receive any instruction because the teacher was attending other students were noted as NI-R (no instruction received). The codes were given the additional symbol 't' if they related to teachers and 's' if they related to students (Figure 1).

Analyses

The interobserver agreement of the AI_{Obs} was calculated in two phases. Initially, it was calculated for all couples of four observers using video recordings of the training phase. Subsequently, it was calculated during a classroom observation, based on couples of observers (only two observers were present during each lesson).

Data management and analysis were performed using SPSS 16.0 (2010). Descriptive statistics and boxplots were used to determine the amount of individual versus group instruction. A graph was used to show fluctuations between individual and group instruction during the lessons observed.

Results

Interobserver agreement

Concerning the videos scored, the calculation of interobserver agreement between all combinations of observers resulted in a mean kappa of 0.93 (range 0.89–0.95). Concerning the observations in real classes, interobserver agreement had kappas of 0.91 and 0.87, respectively.

Academic versus behavioural instruction provided by teachers to the group, subgroup or to individual students

Table 1 presents descriptive statistics for 49 teachers. At full attendance, the number of students in the classroom ranged from 4 to 15 (mean 9.9 students). Of the groups, 48% had combined grades. The mean size of the subgroups was 7 students ($SD = 2.81$). The size of

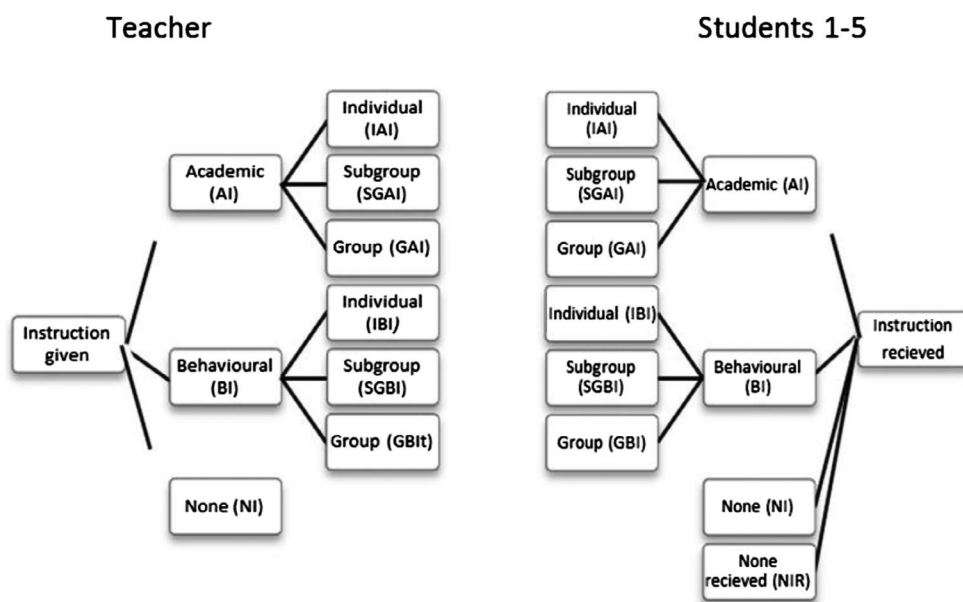


Figure 1. Analyses scheme given and received instruction per group.

the subgroups correlated moderately with the size of the whole group ($r = 0.58$; $p < 0.001$, $N = 1951$). In relation to whole group sizes, the subgroups appeared to be relatively large, at approximately 69% (SD 20.7) of the whole group.

Table 1 shows that, on average, teachers spent most of the observed time delivering academic instruction (71.6%), generally offered to subgroups (32.1%) and, to a lesser extent, to the whole class (18.7%) and individuals (20.8%). Behavioural instruction was mainly provided to individual students (14%) and rarely to the group or subgroups. No instruction was offered for 12.8% of the time.

The boxplot (Figure 2) reveals symmetrical distribution of academic instruction (Alt) over the 49 teachers, with the exception of two teachers, who offered far less instruction during the lesson observed. There is a wide range in the amount of individual, GAI and SGAI. Three teachers provided a substantial amount of individual instruction compared to the other teachers. Concerning behavioural instruction, the boxplot reveals a higher number of outliers, especially due to IBI.

Subsequently, we created graphs to assess the spread of the average academic (Figure 3(A)) and behavioural instruction (Figure 3(B)) over the observation period (30 min, 120 intervals).

Table 1. Descriptive statistics for teachers in % ($n = 49$) concerning instruction provided.

	Mean	SD	Minimum	Maximum
No instruction	12.8	10.2	0.0	45.8
Academic instruction (Alt)	71.6	15.3	19.2	93.3
Individual (IAIt)	20.8	17.8	0.0	75.8
Subgroup (SGAlt)	32.1	26.1	0.0	82.5
Group (GAlt)	18.7	21.7	0.0	68.3
Behavioural Instruction (BIIt)	15.6	13.6	0.0	65.8
Individual (IBIt)	14.0	13.1	0.0	64.2
Subgroup (SGBIt)	0.9	1.4	0.0	6.7
Group (GBAlt)	0.6	1.5	0.0	6.7

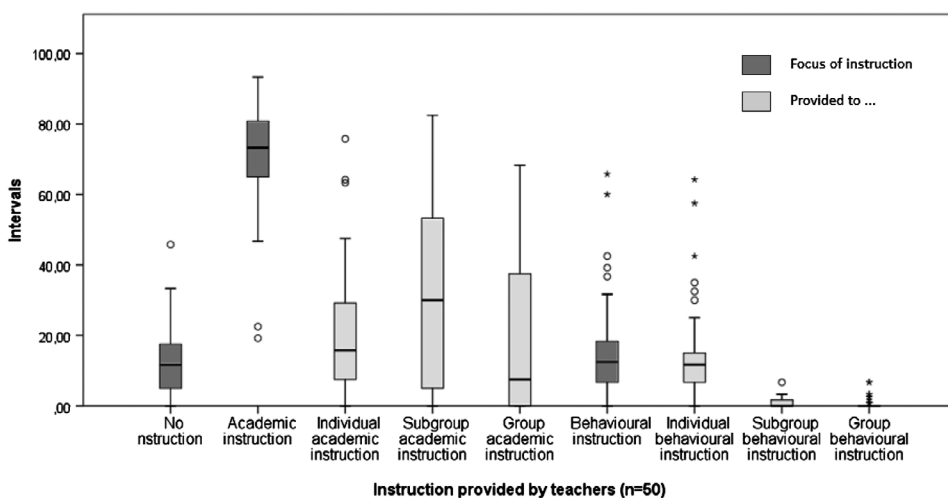


Figure 2. Boxplot of the percentages of the focus of instruction (no, academic and behavioural instruction) provided by teachers to students individually or to subgroups/groups.

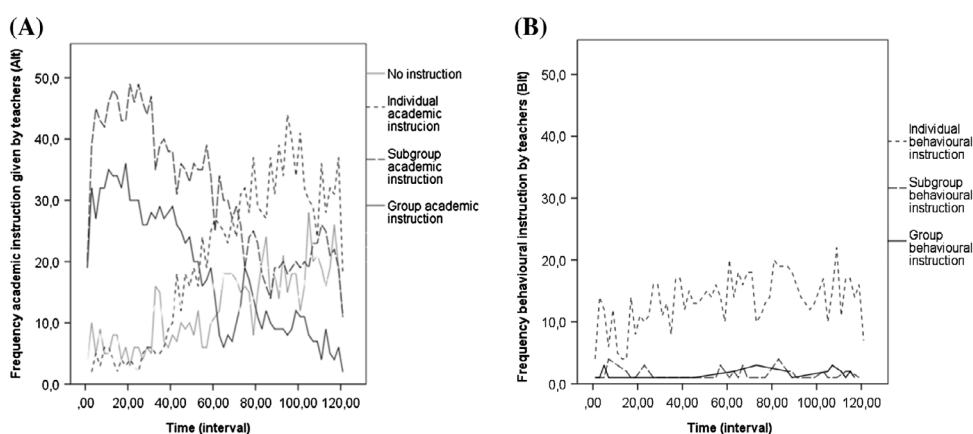


Figure 3. A/B Graphic representation of the spreading of academic (A) and behavioural (B) instruction by teachers over a period of 30 min ($N = 49$).

Figure 3(A) reveals that GAI/SGAI is mainly provided at the beginning of a lesson, decreasing over the 30 min period. In contrast, IAI increases over time, as well as the number of intervals in which no instruction is given. As noted above and shown in Table 1, most academic instruction is given to groups/subgroups of students (50.7%). The amount of behavioural instruction (provided to group/subgroup, as well as individual) remains evenly distributed over time (Figure 3(B)).

In summary, during their lessons, teachers mainly provide academic instruction to the group or subgroups of students. This group/subgroup teaching decreases throughout the lesson, while individual instruction increases. Spread over the whole lesson, teachers provide, on average, IAI for about 20% of the time. Behavioural instruction occurs to a much lesser extent and is for the most part given individually. The amount of behavioural instruction remains the same throughout the lesson.

Distribution of teachers' individual academic versus behavioural instruction across students/received instruction

Table 2 reveals that the students receive, on average, academic instruction for 46.8% of the time, mainly as part of the group or a subgroup (25.7%). They receive behavioural instruction

Table 2. Descriptive statistics in % for students ($n = 245$) concerning instruction received.

	Mean	SD	Minimum	Maximum
No instruction	12.8	10.1	0.0	45.8
Academic instruction (AIs)	46.8	23.0	0.0	85.8
Individual (IAIs)	2.5	4.8	0.0	39.2
Subgroup (SGAIs)	25.7	24.9	0.0	82.5
Group (GAIs)	18.7	21.6	0.0	68.3
Behavioural Instruction (BIs)	3.1	5.2	0.0	53.3
Individual (IBIs)	1.9	4.8	0.0	52.5
Subgroup (SGBIs)	0.6	1.1	0.0	6.7
Group (GBIs)	0.6	1.5	0.0	6.7
No instruction received (NI-r)	37.3	21.1	1.7	93.3

for 3.1% of the time. Table 2 also reveals that for 50.1% of the time students receive no instruction. This is partly because no instruction is given (NI = 12.8%) and partly because the teacher is instructing other students (NI-R = 37.3%).

Boxplots (Figure 4) reveal a disproportionate distribution of instruction across students. Concerning IAI and behavioural instruction (BIs, IBIs and GBIs), the boxplots are skewed to the right, meaning that most students only receive a small amount of individual academic and behavioural instruction. The outliers for individual academic and IBI reveal that only a small selection of the students receive a considerable amount of individual instruction, while most students do not receive any individual instruction (46% of the students).

The histogram in Figure 5 shows an even more detailed picture of IAI received.

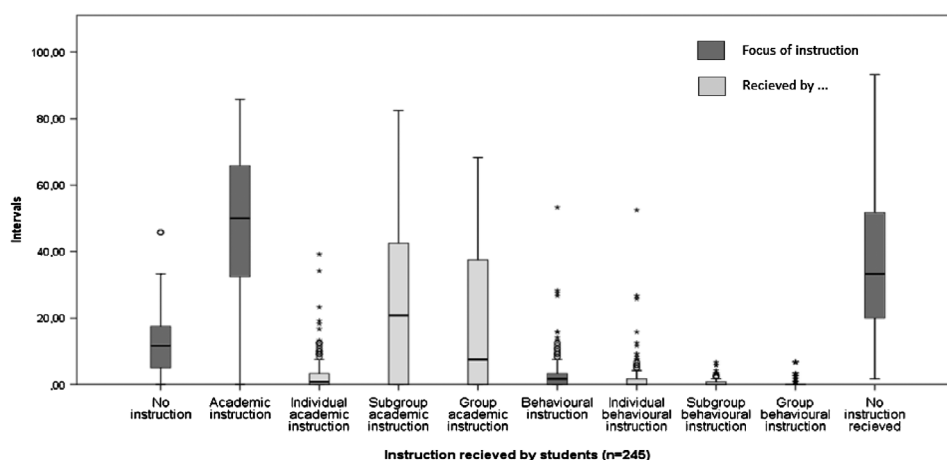


Figure 4. Boxplot of the percentages of the focus of instruction (no, academic and behavioural instruction) received by students individually, or as part of a subgroup/group.

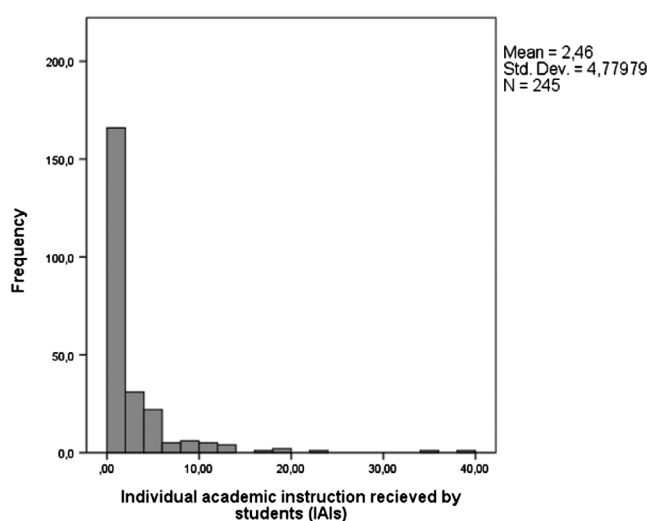


Figure 5. Frequency distribution of the amount of individual received academic instruction ($N = 245$).

In summary, during the lessons, students mainly receive academic instruction, often as part of the group or a subgroup. The amount of individual instruction received is rather small, with great variance between students. Students work without instruction for about half of the lesson.

Conclusion

The purpose of this study was to provide descriptive and quantitative information about the amount of academic instruction provided by teachers and received by their students. Therefore, the extent to which teachers provide academic instruction individually or in a group/subgroup, as well as the amount of academic instruction students receive individually or in a group/subgroup was observed. The results show that the majority of the instruction provided by teachers is academically focused (about 72%), and is generally offered to subgroups (32%) and to a lesser extent to whole groups (about 19%) and individual students (21%). Regarding instruction received, the results show that students receive, on average, academic instruction for about 47% of the time, generally provided in subgroups (about 26%) or whole groups (about 19%). IAI is received for only 2.5% of the time and with great variation (from 0 to 39%). This variation is distributed unevenly, with about 46% of the students not receiving any IAI.

The observations in this study confirm the findings of former studies, in which teachers indicated they provided much academic instruction to students with EBD (Hayling et al. 2008; Van der Worp-van der Kamp et al. 2016). Contrary to expectations, however, the observations also revealed that teachers generally provide a considerable amount of group instruction but less individual instruction. Divided across the students, the mean amount of 2.5% (or 45 s) of individual instruction received is limited. Although the amount of individual instruction varies, students receiving individual instruction for more than 10% (3 min) of the time are exceptional.

Discussion

Given the premise that teachers place much emphasis on approaching EBD students individually (Steenbeek, Jansen, and van Geert 2012; Cameron 2014) and students with disabilities actually require individual instruction (Cameron, Cook, and Tankersley 2012), the scarce occurrence of individual instruction found overall may be insufficient for meaningful learning gains. Moreover, almost half of the students did not receive any individual instruction. Despite the fact that teachers spent about 85% of their time instructing students, the latter have to work on their own for about 50% of the time. These outcomes are in line with the percentages that Vaughn et al. (2002, 11) found regarding individual seatwork. In their opinion, 'an extensive amount of time spent on independent seatwork of which students cannot possibly benefit' was apparent. This is quite comprehensible, as students with EBD need support to stay on-task during this stage of the instructional process. Intense reciprocal interaction between teacher and student is absolutely necessary to keep these students on track (Steenbeek, Jansen, and van Geert 2012).

The percentages listed above reveal the dilemma teachers in special education face. In the current study, on average, the teachers had to divide their attention across 10 students (minimum four, maximum 15). This constitutes a real challenge, since all of their students

have been referred to special education because their 'participation in education is extremely limited in terms of serious shortcomings in academic learning and/or behaviour in relation to the teacher or other students' (WEC-raad 2008). Dividing their instruction time across students, teachers are unavoidably forced to make choices knowing that they cannot achieve optimal outcomes for each and every student. On-going interaction, which is necessary to achieve an optimal outcome for one student, will inevitably be at the expense of other students. Gerber (2005) referred to this as the scarcity dilemma, which automatically leads to a discrepancy between the amount of academic instruction provided by teachers and the amount of academic instruction actually received by the students. This discrepancy might explain previous findings, namely that higher amounts of academic instruction do not lead to higher academic outcomes for students with EBD (Van der Worp-van der Kamp et al. 2016). If teachers are not able to provide all students with the individual instruction required, students will not achieve optimal academic progress. An additional effect of this scarcity dilemma is that students spend a lot of time waiting to be taught. This is not only injurious with respect to the amount of instruction they receive, but is also a prime trigger of serious problem behaviour (DuPaul and Stoner 2002). In this respect, it is remarkable that behavioural instruction does not increase during the lesson.

Limitations of the study

As the study was limited to investigating the amount of academic instruction given and received, it does not provide information on the quality of the instruction. The importance of the latter is recognised by the author and was a main topic of a prior study (Van der Worp-van der Kamp et al. 2016). However, since the amount of instruction provided and, in particular, received appear to be understudied in the literature, this study focused on the quantitative aspect of instruction. Accordingly, the data presented concerning the instruction provided and received offers no information about the active involvement of students, while receiving instruction. Especially for students with EBD, the latter seems to be a necessary condition for academic learning. As De Lugt stated (2007, 126): 'capturing and maintaining the attention of students with EBD is often pivotal in their learning. Instruction should therefore be highly engaging if disengagement and possible behavioural problems are to be avoided'. Research, however, shows that group as well as individual instruction tends to move in one direction from teacher to students rather than reciprocal interaction. Further research that focuses on the quantity of reciprocal interaction between teachers and student(s) with EBD is necessary and therefore highly recommended.

The role of the teaching assistants was not addressed in this study because RENN4 employs few assistants. Nevertheless, given the fact that tutors, trainees and assistants were present in 64% of the classes in the current study, their role in special classes cannot be ignored. Assistants provide support to students, supplementing teachers by giving instruction to individuals or small groups (Maggin et al. 2009). Moreover, assistants often take small groups of disruptive students out of the classroom, giving teachers the opportunity to provide academic instruction to the rest of the students. The latter probably explains the relatively large size of the subgroups, which was approximately 69% (SD 20.7) of the whole group.

Consequently, the presence of assistants may have affected the outcomes of this study, insofar as an assistant supporting one or more students (sometimes out of the classroom), allowed the teacher to offer more instruction to a subgroup or to individual students. Moreover, the possible presence of an assistant supporting students during individual seat-work, puts the 50.1% of the time in which students did not receive instruction into another perspective. Some of the students may have had some form of support from an assistant during this period. Nevertheless, it should be noted that the use of assistants for students with EBD is controversial, with research showing that assistants have a negative impact on the academic outcomes of these students (Blatchford et al. 2007). Further studies regarding the quantity and quality of instruction offered by assistants would be worthwhile and would provide important additional information.

In summary, this study, offering a mere snapshot of the instruction provided and received in special education classrooms, adds to a growing body of literature on academic instruction for students with EBD. It suggests once again that the statement that 'teachers of students with EBD tend to focus on behavioural instead of academic instruction' (Wehby, Tally, and Falk 2004; Pianta and Hamre 2009; Vannest and Hagan-Burke 2010) may be outdated. Although the latter is still cited as an important reason for the bleak academic outcomes of such students, it is now time to focus on finding ways to distribute academic instruction across students with EBD in the most optimal way possible. Furthermore, techniques that support students with EBD during the periods in which their teachers are occupied with other students should be developed and further studied. These techniques must take into account the capacity of teachers in real school settings.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Lidy van der Worp-van der Kamp is a Phd in Special Educational Needs. Presently, she is working as a lecturer and researcher at the Department of Special Needs Education, University of Groningen, The Netherlands. Her research focuses on the effect of academic instruction on academic and behavioural outcomes of students in special education.

Jan Bijstra is a doctor in Developmental Psychology. Presently, he is working as a researcher at the Regional Expertise Centre for Northern Netherlands (RENN4) in the Netherlands. His research interest includes the effects of intervention programs on students with special educational needs.

Sip Jan Pijl is a professor of Special Needs Education at the University of Groningen, The Netherlands. He is also attached part-time to the Norwegian University of Science and Technology in Trondheim, Norway. His research focuses on both conditions and effects of inclusive education.

Wendy Post is an associate professor in statistics and methodology at the Department of Special Needs Education, University of Groningen, The Netherlands. She is specialized in random effects models, missing data and measurement theory.

Alexander Minnaert is full professor of Special Needs and Clinical Education at the University of Groningen, The Netherlands. His research interests are focused upon motivation, emotion, self-regulation, learning (disabilities), teaching and inclusive education.

References

- Baker, J. A., T. P. Clark, K. S. Maier, and S. Viger. 2008. "The Differential Influence of Instructional Context on the Academic Engagement of Students with Behavior Problems." *Teaching and Teacher Education: An International Journal of Research and Studies* 24 (7): 1876–1883.
- Blatchford, P., A. Russell, P. Bassett, P. Brown, and C. Martin. 2007. "The Role and Effects of Teaching Assistants in English Primary Schools (Years 4 to 6) 2000–2003. Results from the Class Size and Pupil–Adult Ratios (CSPAR) KS2 Project." *British Educational Research Journal* 33 (1): 5–26. doi:10.1080/01411920601104292.
- Cameron, D. L. 2014. "An Examination of Teacher–Student Interactions in Inclusive Classrooms: Teacher Interviews and Classroom Observations." *Journal of Research in Special Educational Needs* 14 (4): 264–273. doi:10.1111/1471-3802.12021.
- Cameron, D. L., B. G. Cook, and M. Tankersley. 2012. "An Analysis of the Different Patterns of 1:1 Interactions between Educational Professionals and Their Students with Varying Abilities in Inclusive Classrooms." *International Journal of Inclusive Education* 16 (12): 1335–1354. doi:10.1080/13603116.2011.580459.
- De Lugt, J. 2007. "Academic Achievement of Students with Emotional and Behavioural Disorders: A Review of the Research." *Exceptionality Education Canada* 17 (3): 111–136.
- DuPaul, G. J., and G. Stoner. 2002. "Interventions for Attention Problems." In *Interventions for Academic and Behavioral Problems II: Preventive and Remedial Approaches*, edited by M. Shinn, H. M. Walker, and G. Stoner, 913–938. Bethesda, MD: National Association of School Psychologists.
- Gerber, M. M. 2005. "Teachers are Still the Test." *Journal of Learning Disabilities* 38 (6): 516–524.
- Hart, K. C., G. M. Massetti, G. A. Fabiano, M. E. Pariseau, and W. E. Pelham. 2011. "Impact of Group Size on Classroom on-Task Behavior and Work Productivity in Children with ADHD." *Journal of Emotional and Behavioral Disorders* 19 (1): 55–64. doi:10.1177/1063426609353762.
- Haydon, T., A. S. Macsuga-Gage, B. Simonsen, and R. Hawkins. 2012. "Opportunities to Respond: A Key Component of Effective Instruction." *Beyond Behavior* 22 (1): 23–31.
- Hayling, C. C., C. Cook, F. M. Gresham, T. State, and L. Kern. 2008. "An Analysis of the Status and Stability of the Behaviors of Students with Emotional and Behavioral Difficulties." *Journal of Behavioral Education* 17 (1): 24–42. doi:10.1007/s10864-007-9059-5.
- Kurz, A., D. Talapatra, and A. T. Roach. 2012. "Meeting the Curricular Challenges of Inclusive Assessment: The Role of Alignment, Opportunity to Learn, and Student Engagement." *International Journal of Disability, Development, and Education* 59 (1): 37–52. doi:10.1080/1034912X.2012.654946.
- Lane, K. L. 2007. "Identifying and Supporting Students at Risk for Emotional and Behavioral Disorders within Multi-level Models: Data Driven Approaches to Conducting Secondary Interventions with an Academic Emphasis." *Education and Treatment of Children* 30 (4): 135–164.
- Lane, K. L., S. M. Barton-Arwood, J. R. Nelson, and J. Wehby. 2008. "Academic Performance of Students with Emotional and Behavioral Disorders Served in a Self-contained Setting." *Journal of Behavioral Education* 17 (1): 43–62.
- Lane, K. L., J. Wehby, and S. M. Barton-Arwood. 2005. "Students with and at Risk for Emotional and Behavioral Disorders: Meeting Their Social and Academic Needs." *Preventing School Failure: Alternative Education for Children and Youth* 49 (2): 6–9.
- Ledoux, G., J. Roeleveld, A. van Langen, and E. Smeets. 2012. *Inhoudelijk Rapport* [Cool Special]. Rapport 884, Projectnumber 20476. Amsterdam: Kohnstamm Instituut.
- Levy, S., and S. Vaughn. 2002. "An Observational Study of Teachers' Reading Instruction of Students with Emotional or Behavioral Disorders." *Behavioral Disorders* 27 (3): 215–235.
- Maggin, D. M., J. H. Wehby, T. C. Moore-Partin, R. Robertson, and R. M. Oliver. 2009. "Supervising Para Educators in Classrooms for Children with Emotional and Behavioral Disorders." *Beyond Behavior* 18 (3): 2–9.
- Matheson, A. D., and M. D. Shriver. 2005. "Training Teachers to Give Effective Commands: Effects on Student Compliance and Academic Behaviors." *School Psychology Review* 34 (2): 202–219.
- Metzker, B. 2003. "Time and Learning." *ERIC Digest*: 1–7. <http://files.eric.ed.gov.proxy-ub.rug.nl/fulltext/ED474260.pdf>.

- Moore, D. W., A. Anderson, and K. Kumar. 2005. "Instructional Adaptation in the Management of Escape-maintained Behavior in a Classroom." *Journal of Positive Behavior Interventions* 7 (4): 216–223.
- Pianta, R. C., and B. K. Hamre. 2009. "A Lot of Students and Their Teachers Need Support: Using a Common Framework to Observe Teacher Practices Might Help." *Educational Researcher* 38 (7): 546–548. doi:10.3102/0013189X09348786.
- Reid, R., J. E. Gonzalez, P. D. Nordness, A. Trout, and M. H. Epstein. 2004. "A Meta-analysis of the Academic Status of Students with Emotional/Behavioral Disturbance." *The Journal of Special Education* 38 (3): 130–143.
- Saudargas, R. A., and K. Zanolli. 1990. "Momentary Time Sampling as an Estimate of Percentage Time: A Field Validation." *Journal of Applied Behavior Analysis* 23 (4): 533–537.
- Steenbeek, H., L. Jansen, and P. V. van Geert. 2012. "Scaffolding Dynamics and the Emergence of Problematic Learning Trajectories." *Learning and Individual Differences* 22 (1): 64–75.
- Umbreit, J., J. Ferro, C. Liaupsin, and K. Lane. 2007. *Functional Behavioral Assessment and Function-based Interventions: An Effective, Practical Approach*. Upper Saddle River, NJ: Prentice-Hall.
- Van der Worp-van der Kamp, L., S. J. Pijl, W. J. Post, J. O. Bijstra, and E. J. Van den Bosch. 2016. "The Effect of Systematic Academic Instruction on Behavioural and Academic Outcomes of Students with EBD." *Educational Studies* 42 (1): 72–84. doi:10.1080/03055698.2016.1148584.
- Van der Worp-van der Kamp, L., S. J. Pijl, W. J. Post, J. O. Bijstra, and E. J. Van den Bosch. 2017. "Systematic Academic Instruction for Students with EBD: The Construction and Use of a Tool for Teachers." *Journal of Research in Special Educational Needs* 17 (1): 31–40. doi:10.1111/1471-3802.12096.
- Vannest, K. J., and S. Hagan-Burke. 2010. "Teacher Time Use in Special Education." *Remedial and Special Education* 31 (2): 126–142. doi:10.1177/0741932508327459.
- Vaughn, S., S. Levy, M. Coleman, and C. S. Bos. 2002. "Reading Instruction for Students with LD and EBD." *The Journal of Special Education* 36 (1): 2–13.
- WEC-raad. 2008. *Wijzigingen Indicatiecriteria Voor Leerlinggebonden Financiering* [Changing Accession Criteria Student-bound Budget]. <http://www.projectenso.nl/docs/10b31bf0-d4c4-8c8b-e8d8-624a2bf22c44.pdf>.
- Wehby, J. H., K. L. Lane, and K. B. Falk. 2003. "Academic Instruction for Students with Emotional and Behavioral Disorders." *Journal of Emotional and Behavioral Disorders* 11 (4): 194–197.
- Wehby, J., B. B. Tally, and K. B. Falk. 2004. "Identifying the Relation between the Function of Student Problem Behavior and Teacher Instructional Behavior." *Assessment for Effective Intervention* 30 (1): 41–51. doi:10.1177/073724770403000104.